

division of the elements into metallics and non-metallics is the bottom classification of matter, the only one with confidence to be designated great."

Again (p. 56) :

"With this alteration (hydrogen considered as metallic) are we warranted in ascribing to this dual classification of substance that importance, both scientifically and philosophically, which we assign it? The evidence is overwhelmingly affirmative, for no known natural product exists which does not contain both classes of these elements in combination. *Matter itself must thus be sexual.*"

There is a very widely spread mineral substance composed of silicon and oxygen which forms no inconsiderable a proportion of the earth's rocky constituents, and of which the author has no doubt heard. Silica in its various forms is certainly a natural product ; and so Mr. Dewar will no doubt insist upon classifying silicon with the metals. There is also a gas composed of carbon and oxygen which is present in the atmosphere, and which is of vital importance for plant life. We should like to know how Mr. Dewar brings carbon dioxide under his "fundamental principle, which embodies one of the most salient truths in the science of the century" (p. 57).

The reader who is anxious to know how the "New Materialism" deals with the problem of life will find it disposed of in a light and airy way that might even be provocative of mirth were it not evident on every page that the author intends us to take him seriously. There is absolutely no mystery about it at all—there is no unknown force, there is no impulse different from the ordinary laws of matter. The animal is "a mere mass of conjoined magnets," containing "a virtual magnetic battery in its stomach" (p. 222). Elsewhere we are told that the plant differs from the animal in having its magnetic battery outside instead of within, and the author seems quite proud of having discovered a distinction between animals and plants that has hitherto eluded the men of science (p. 164). As for the appearance of life on the earth, it is a mere trifle to the "New Materialism" :

"Under suitable conditions of heat, light and moisture, a chance flux of suitable atoms combines sexually into vegetal molecules" (p. 159) [magnetism as before].

"Even, as on a frosty night, the surface of the ground is whitened with crystals of rime, so in many a river and ocean bed the water must often coagulate with millions of vegetal and animal cells" (p. 209).

"But as igneous activity subsided to solid quiescence, and water, soil, light and heat interacted, the protoplasmic elements—oxygen, hydrogen, carbon, nitrogen, &c.—would meet in suitable proportion, and [magnetism as before] the spontaneous production of simple organisms—protophyta, protozoa and the lowest kinds of fungi and algæ—would ensue as a matter of course, &c." (p. 246).

The origin of man is described (p. 247) in a manner that can only make the reader exclaim that the New Materialism, like a certain historical character, is *capable de tout* :—

"Man's first progenitors thus probably appeared on the earth as spontaneously produced protoplasmic cells or ovules, hundreds or thousands in number, developed by sexual and magnetic affinities from a flux of the chemical elements in some ambrosial inlet of water."

No further extracts need be given, and no further criticism is necessary to justify the opinions expressed at the beginning of this notice. R. MELDOLA.

NO. 1612, VOL. 62]

### OUR BOOK SHELF.

*Untersuchungen über Philons und Platons Lehre von der Weltschöpfung.* Von Jakob Horovitz. Pp. xiii + 124. (Marburg : N. G. Elwart, 1900.)

DR. HOROVITZ' essay is the outcome of his thesis approved for the degree of philosophy in the University of Marburg. Its purpose is to focus the rays of light which close exegesis of the *Timaeus* throws upon the cosmogonic scheme wherein Philo effected the synthesis of Plato and Moses. While recognising the Stoic and Neopythagorean elements in Philo's teaching, Dr. Horovitz has little difficulty in showing that in both style and matter the dominant influence was Plato's. It is to the analysis, then, of Plato's creation-myth that we must turn if we would understand Philo with his enormous influence on the development of the doctrine of the Logos in Christian literature.

The ζῶον νοητόν of the *Timaeus* is no mythical duplicate of the demiurge, but distinguished as *das ewige Urbild* from the latter, whose real causal activity leads to an identification with the creative reason and ideal good of earlier dialogues. The subordinate artificers of physical creation are not the ideas as distinct from the idea of good, but in part a concession to popular theology, in part perhaps due to the place of evil in Plato's system, and the fact that dualism, though overruled, is not extinguished. In his valuable and textually supported discussion of the problems, Dr. Horovitz perhaps tends to overestimate the consistency and continuity of Plato's writings, and to underestimate the *mythus* element in the *Timaeus*.

Now Philo's intelligible world or order, the work of the one day of creation before time was or the serial "days" of the production of the world of sense began, is to be assimilated to the intelligible ζῶον of Plato as modified in conception by a use of the Stoics' metaphor of architect and supra-sensual city. It is not the Logos save in the sense in which his plan is the mind of the architect. Dr. Horovitz moves familiarly among the conceptions of Logos, intelligible world, ideal man and the like, and by adjustment of the emphasis on the various clauses of Philo's commentary produces a construction which might carry conviction. The *mutata* of Philo, and the reasons why they were *mutanda* from the Platonic theory, are well brought out. The ideal man is the work of God, the physical man is the work of God in conjunction with subordinate agents, and these powers find their natural analogue in the angels of the Jewish scheme. Platonic scholars, or those of them who have not despaired of the ζῶον as unintelligible, will find food for reflection in the one side of Dr. Horovitz' study. Theologians, students of Neoplatonism, persons who take an interest in the Hegelian *Religionsphilosophie*, may well take their starting-point from the other. H. W. B.

*Fungus Diseases of Citrus Trees in Australia, and their Treatment.* By D. McAlpine. Pp. 132 ; 19 plates. (Melbourne : Brain, Government Printer, 1899.)

THIS is one of the many useful publications dealing with plant diseases issued by the Victoria Department of Agriculture. According to statistics given, the cultivation of orange and lemon trees is extending rapidly, and one successful lemon grower considers that instead of paying 62,498*l.* annually for oranges and lemons, the colony could not only produce sufficient for home consumption, but could also supply the half of Europe. Under these circumstances the appearance of a work of the kind under consideration is most opportune, more especially as it is stated to be written for the benefit of growers. It is therefore somewhat disappointing to find that a considerable portion of the text is devoted to technical descriptions of new species of fungi, a subject of no interest whatever to cultivators, more

especially as many of the species enumerated are simply saprophytic forms, whose presence can do no injury. The enumeration of such species is, from a scientific standpoint, of great value; but they are altogether out of place in a work which should place before practical men the outcome of scientific research in language divested of scientific technicalities. The author considers it essential that each fungus should possess a popular name in addition to its scientific one, and there is some justification for this idea, especially when such names are of local origin, and express a definite idea, as "collar-rot," "wither-top," &c., but it is more than doubtful whether the English rendering of the scientific name, as "West Australian Septoria," or "Glæosporium-like Colletotrichum," will be adopted by the fruit grower. Fifty-one species of fungi found on citrus trees are described as new to science; this is a somewhat daring piece of work in the comparative absence of literature and herbaria. It must be borne in mind that the fact of a fungus not agreeing with any species recorded in Saccardo's "Sylloge Fungorum" by no means justifies an author in describing it as new to science.

In defining parasites and saprophytes respectively, the author states that it is not always easy to decide between the two, and the crucial test, by means of pure cultures, is not alluded to. This, however, may not be due to lack of knowledge or desire on the part of the author, who, as vegetable pathologist, is probably expected to cover too much ground; hence fundamentals, which consume time, are apt to be neglected in favour of less exact methods, which may meet with approval for the time being.

The twelve coloured plates illustrating the most pronounced and destructive forms of disease attacking lemons and oranges are excellent in every respect, and should prove of great service in enabling planters to recognise at an early stage the appearance of a disease which, if neglected, might prove disastrous. The most approved methods of treating the various diseases are given in tabular form.

*Missouri Botanical Garden. Eleventh Annual Report.*  
Pp. 144; 58 plates. (St. Louis, Missouri, 1900.)

THIS volume is almost entirely made up of four scientific papers representing work carried out in connection with the Missouri Botanical Garden. The papers are: a disease of *Tascodeium distichum* known as "peckiness," also a similar disease of *Libocedrus decurrens* known as pin-rot, by Dr. H. von Schrenk; Agaves flowering in the Washington Botanic Garden in 1898, by Mr. J. N. Rose; A Revision of the American species of Euphorbia of the section Tithymalus occurring north of Mexico, by Mr. J. B. S. Norton; and a Revision of the species of *Lophotocarpus* of the United States, and a description of a new species of *Sagittaria*, by Mr. J. G. Smith. Dr. von Schrenk's paper has already been noticed (vol. lxi. p. 452).

Mr. Trelease, the director of the Garden, shows by these papers and his report that valuable work is being done. A small synoptical collection representative of the principal natural orders of flowering plants has been installed in the central part of the Garden, where it is proposed to continue it as a convenient means of enabling teachers in elementary schools to demonstrate to their pupils the characters of the larger plant groups. The total number of species and varieties now cultivated in the Garden is nearly ten thousand.

Mr. Trelease devoted a couple of months last summer to the study of the botany of the Alaskan coast region and the islands of Bering Sea, as a member of the Harriman Alaska Expedition. The scientific results of his work will, no doubt, be published after the large amount of material collected has been subjected to critical study.

### LETTERS TO THE EDITOR.

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#### Atmospheric Electricity and Dew-ponds.

It is not my intention to enter into controversy with such authorities as Mr. Aitken or Mr. Wilson. I wish only to describe certain phenomena which have come under my notice, in the hope that I may help to throw some light on a subject of great importance, theoretical as well as practical.

On the chalk hills in the south-east of England there are a number of ponds known as dew-ponds. One of these was described by Gilbert White ("Natural History of Selborne," Letter 29). There is a pond of considerable size at one of the highest points of the main ridge of the South Downs close to Chanctonbury Ring. From its position it is obvious that this pond can only be fed by water precipitated into it directly from the air. Yet it always contains a considerable volume of water. At the end of the dry weather last year, when most of the ponds in the valleys were empty, this dew-pond still contained several thousand gallons. How does this pond obtain the enormous quantities of water necessary to compensate for the rapid evaporation in such an exposed position, and also to supply large flocks of sheep?

It appeared to me that there was but one possible explanation: a difference of electrical potential must cause an attraction between the particles of moisture and the summit of the hill upon which the pond is situated. It is, of course, well known that drops of rain, &c., usually have an electrical charge, but it was necessary to ascertain whether this was capable of producing such a great effect. In order to test this point I took two porcelain basins of equal size and suspended them by means of silk threads from stakes driven into the ground at a high part of the ridge of the South Downs. In each of these basins was fixed an upright piece of sheet-copper. The two pieces of apparatus were placed in exactly similar positions and were in every respect identical, except that in the one case the copper screen was connected to earth by means of a wire, whereas in the other case it was insulated by the silk threads.

The apparatus was left thus during the night of April 1, 1899. There was a thick mist on the hills, so much so that I was unable to select the most favourable position for the apparatus. In the morning the amount of water in the two basins was measured. In the basin with the insulated screen there were 15.5 c.c. of water; in that with the screen connected to earth there were 18.0 c.c. This clearly confirmed my theory, for the insulated apparatus would tend to acquire an electrical charge from the particles of moisture. Consequently the attraction would be less than in the case of the apparatus which was not insulated. The insulation must have been very imperfect, for the silk became saturated with moisture as soon as the apparatus was erected. The position chosen, also, was not so favourable as it might have been. Nevertheless there was a difference of 16 per cent. in the quantities of moisture collected.

I intended to repeat and extend the experiment, but I have been unable to find an opportunity. I hope that this letter will call attention to a matter of considerable interest.

ARTHUR MARSHALL.

Chemical Department, Woolwich Arsenal, September 10.

#### Huxley and his Work.

MR. HENKEL'S quotation from "One Hundred and One Great Writers" (NATURE, September 6) reminds one that the taunt of being a populariser was familiar enough to Huxley himself. It recalls also the little side-thrusts with which in return the detractors were sometimes honoured. In the preface to vol. viii. of the "Collected Essays," for instance, Huxley remarks:—

"The popularisation of science has its drawbacks. Success in this department has its perils for those who succeed. The people who fail take their revenge, as we have recently had occasion to observe, by ignoring all the rest of a man's work and glibly labelling him a mere populariser."